

WE CLAIM:

1. An aqueous peracid treatment composition, adapted for the removal of an odor composition from a gaseous stream, the treatment composition comprising, in an aqueous medium, an effective odor reducing amount of a peracid composition and an effective soil removing amount of a surfactant composition comprising;



wherein m is 2 to 60, o and n are independently 0 to 40; R is a benzyl group, an alkylaryl group or, if $1 \leq o + n \leq 20$, R is a C_{1-18} alkyl group; R' is a benzyl group, an alkylaryl group or, if $o + n \leq 1$, R' is a -H group; and x is 1-6.

2. The composition of claim 1 wherein the peracid composition comprises a peracetic acid composition, and the soil is elemental sulfur.

3. The composition of claim 2 wherein the aqueous treatment composition comprises about 0.1 to 50 weight percent of a peracetic acid composition and about 0.1 to 30 weight percent of the surfactant.

4. The composition of claim 1 wherein the aqueous treatment composition this additionally comprises about 0.1 to 25 weight percent of a sequestrant composition.

5. An aqueous treatment composition, adapted for direct contact with a soil residue, the residue comprising an elemental sulfur, a carbonate, a phosphate, a silicate or mixtures thereof, in a treatment zone, the composition comprising about 0.1 to 50 parts by weight of a peracid composition and about 0.1 to 30 weight percent of a surfactant comprising:



wherein m is 2 to 60, o and n are independently 0 to 40; R is a benzyl group, an alkylaryl group or, if $1 \leq o + n \leq 20$, R is a C_{1-18} alkyl group; R' is a benzyl group, an

alkylaryl group or, if $o + n \leq 1$, R' is a $-H$ group; and x is 1-6, for each one million parts of the aqueous treatment composition.

6. The composition of claim 5 wherein the treatment zone is adapted for removal of an odor comprising a sulfur compound from a gaseous stream

7. The composition of claim 5 wherein the peracid composition comprises a peracetic acid composition.

8. The composition of claim 5 wherein the aqueous treatment composition comprises about 1.0 to 20 weight percent of a peracetic acid composition and about 0.1 to 20 weight percent of the surfactant.

9. The composition of claim 5 wherein the aqueous treatment composition this additionally comprises about 0.1 to 10 weight percent of a sequestrant composition.

10. A process for removing an inorganic soil composition from a surface, the process comprising contacting a surface with an aqueous solution comprising an effective inorganic removing amount of a surfactant comprising:



wherein m is 2 to 60, o and n are independently 0 to 40; R is a benzyl group, an alkylaryl group or, if $1 \leq o + n \leq 20$, R is a C_{1-18} alkyl group; R' is a benzyl group, an alkylaryl group or, if $o + n \leq 1$, R' is a $-H$ group; and x is 1-6.

11. The method of claim 10 wherein the inorganic soil comprises a soil comprising sulfur, sulfate, carbonate, silicate, phosphate or mixtures thereof.

12. The method of claim 10 wherein the surface is a hard surface.

13. The method of claim 10 wherein any of the EO, PO, BO residues are in the form of a block polymer segment.

14. The method of claim 10 wherein any of the EO, PO, BO residues are randomly polymerized .

5 15. The method of claim 10 wherein the surfactant is used in an amount of about 1 to 4000 ppm.

16. The method of claim 10 wherein the surfactant is used in an amount of about 2 to 1500 ppm.

10

17. The method of claim 10 wherein the surfactant is used in an amount of about 5 to 800 ppm.

15 18. The method of claim 10 wherein the aqueous treatment comprises an acid pH.

19. The process of claim 18 wherein the aqueous solution additionally comprises a peroxyacetic acid composition.

20 20. The process of claim 10 wherein the aqueous solution comprises a sequestrant

21. The process of claim 20 wherein the sequestrant comprises 1-hydroxyethylidene-1,1-diphosphonic acid.

25

22. The process of claim 20 wherein the aqueous treatment composition comprises about 1 to about 2000 parts by weight of surfactant and 1 to 800 parts of sequestrant for each one million parts by weight of the aqueous solution.

30 23. The process of claim 20 wherein the aqueous treatment composition comprises about 1 to 1000 parts surfactant and 1 to 500 parts sequestrant.

24. A process for removing an odor component comprising an inorganic scale containing compound from an gaseous stream and preventing or removing a soil in a gas treatment zone, the process comprising:

(a) contacting a gaseous effluent comprising the inorganic containing compound with a oxidizing agent in a treatment zone, forming an oxidized odor component and a soil; and

(b) preventing the formation of or removing at least a portion of the soil with an effective soil removing amount of a surfactant comprising:



wherein m is 2 to 60, o and n are independently 0 to 40; R is a benzyl group, an alkylaryl group or, if $1 \leq o + n \leq 20$, R is a C_{1-18} alkyl group; R' is a benzyl group, an alkylaryl group or, if $o + n \leq 1$, R' is a -H group; and x is 1-6.

25. The method of claim 24 wherein the oxidizing agent comprises an aqueous solution of an oxidizing agent, the aqueous solution additionally comprising the surfactant and the soil comprises elemental sulfur.

26. The method of claim 24 wherein a gaseous stream is contacted within oxidizing agent in a treatment zone, and the treatment zone is contacted with the surfactant during a separate cleaning step.

27. The method of claim 24 wherein any of the EO, PO, BO residues are in the form of a block polymer segment.

28. The method of claim 24 wherein the soil comprises elemental sulfur, sulfate, carbonate, phosphate, silicate or mixtures thereof.

29. The method of claim 24 wherein the inorganic containing compound comprises elemental sulfur.

5 30. The method of claim 24 wherein the sulfur containing compound comprises a carbonate.

31. The process of claim 24 wherein the odor removal, as measured by an odor threshold score, comprises about 20% or more.

-10- - - 32.- - The process of claim 24 wherein the treatment zone and comprises a wet scrubber tower.

15 33. The process of claim 24 wherein a venturi contactor is used to contact the gaseous stream with the agent.

34. The process of claim 32 wherein in the wet scrubber tower, the gaseous stream passes vertically against a countercurrent flow of finely divided particulates or thin streams of the oxidizing agent.

20 35. The process of claim 24 wherein the oxidizing agent composition comprises a peroxyacetic acid composition.

25 36. The process of claim 25 wherein the aqueous treatment composition comprises about 1 to about 4000 parts by weight of surfactant for each one million parts by weight of the aqueous solution.

37. The process of claim 25 wherein the aqueous solution comprises a sequestrant

30 38. The process of claim 37 wherein the sequestrant comprises 1-hydroxyethylidene-1,1-diphosphonic acid.

39. The process of claim 25 wherein one cubic foot of gaseous stream is contacted with about 0.01 to 10 liters of aqueous treatment solution.

5 40. The process of claim 24 wherein at least about 20 % of an odor forming compound selected from the group consisting of an organo-mercaptan, hydrogen sulfide or mixtures thereof, is absorbed and removed in the process from the plant atmosphere effluent and wherein the odor threshold is reduced by at least 20%.

10 41. The process of claim 32 wherein the wet scrubber comprises a packed column.

42. The process of claim 32 wherein, the wet scrubber column, the gaseous stream passes vertically with a cocurrent flow of finely divided particulates or streams
15 of the aqueous peroxyacid treatment composition.

43. A process for removing a soil from a gas treatment zone, the process comprising:

- 20 (a) contacting a gas a treatment zone with a treatment; and
(b) preventing the formation of or removing at least a portion of the inorganic soil from the treatment zone, the treatment comprising an effective inorganic soil removing amount of a surfactant comprising:



wherein m is 2 to 60, o and n are independently 0 to 40; R is a benzyl group, an
25 alkylaryl group or, if $1 \leq o + n \leq 20$, R is a C_{1-18} alkyl group; R' is a benzyl group, an alkylaryl group or, if $o + n \leq 1$, R' is a -H group; and x is 1-6.

44. The method of claim 43 wherein the soil comprises a carbonate soil.

30 45. The method of claim 43 wherein the soil comprises a phosphate soil.

lab
should
depend
on C: 43⁵

46. The method of claim 1 wherein the soil comprises a soil selected from the group consisting of a soil comprising a sulfur and carbonate soil, a sulfur and phosphate soil, a carbonate and silicate soil, a carbonate and phosphate soil, or mixtures thereof.

47. The method of claim 43 wherein the oxidizing agent comprises an aqueous solution of an oxidizing agent, the aqueous solution additionally comprising the surfactant.

48. The method of claim 43 wherein a gaseous stream is contacted within oxidizing agent in a treatment zone, and the treatment zone is contacted with the surfactant during a separate cleaning step.

49. The method of claim 43 wherein any of the EO, PO, BO residues are in the form of a block polymer segment.

50. The method of claim 43 wherein any of the EO, PO, BO residues are in the form of a randomly polymerized segment.

51. The method of claim 43 wherein the inorganic soil comprises elemental sulfur.

52. The method of claim 43 wherein the inorganic soil comprises a carbonate.

53. The process of claim 43 wherein the odor removal, as measured by an odor threshold score, comprises about 20% or more.

54. The process of claim 43 wherein the oxidizing agent composition comprises a peroxyacetic acid composition.

5 56. The process of claim 43 wherein the aqueous solution comprises a
sequestrant

10

THE UNIVERSITY OF CHICAGO